

### SUPPORT FOR THE AMENDMENTS

Support for the amendment to Claim 1 is found in Figures 1, 2 and 3.

No new matter is added to this application by entry of this amendment.

Claims 1-21 are active. Claims 14-21 are Withdrawn.

### REMARKS/ARGUMENTS

The claimed invention is directed to a method for the production of an upgraded coal according to independent Claim 1 and Claims dependent thereon, which does not use hydrogen gas.

Applicants wish to thank Examiner Zhu for the useful and courteous discussion of this application with Applicants' U.S. representative on May 28, 2009. At that time, Applicants' U.S. representative reviewed the representations of Figures 1, 2 and 3, and discussed that in no Figure describing the claimed method, is hydrogen addition shown. Applicants' U.S. representative argued that such showing when combined with the stated objective of the invention as described on page 5 of the specification supports description that hydrogen is not added to the slurry preparation tank or the aging tank. The following reiterates and expands upon the discussion.

Applicants respectfully note that Claim 1 is herein amended to recite that:

hydrogen is not added to the slurry preparation tank or the aging tank.

Applicants respectfully submit that according to M.P.E.P. 2163.03, the fundamental factual inquiry regarding the written description requirement, is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, the applicant was in possession of the invention as now claimed. The M.P.E.P. 2163.03 states:

An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, **figures**, diagrams, and formulas that fully set forth the claimed invention. *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 41 USPQ2d 1961, 1966 (Fed. Cir. 1997)(Bold added)

MPEP § 2163 further states:

The analysis of whether the specification complies with the written description requirement calls for the examiner to compare the scope of the claim with the scope of the description to determine whether applicant has demonstrated possession of the claimed invention. Such a review is conducted from the standpoint of one of skill in the art at the time the application was filed.

Applicants have described the need for a method to upgrade coal which does not use expensive hydrogen and indicate the claimed invention addresses this problem, beginning on page 4, line 24, and bridging to page 5, line 14, in the specification, as follows:

“Furthermore, the conventional coal upgrading method uses, as the solvent, a hydrogen donor substance such as tetralin or the like for increasing the coal dissolving power, or a nitrogen-containing solvent such as N-methylpyrrolidinone or coal tar, and thus the method is disadvantageous to industrial production for the following reasons:

Since the hydrogen donor solvent loses its hydrogen donating property in extraction, the solvent must be re-hydrogenated for recycling the solvent. However, **hydrogen is very expensive, and there has been found substantially no example of commercial application in the field of metallurgical use.** The nitrogen-containing solvent has excessively high compatibility with coal, and thus the solvent and the extracted coal are bonded together, thereby failing to recover the solvent. This causes the problem of failing to recycle the solvent.

Applicants have described that an object of the current invention is to provide a method to upgrade a low rank coal that does not suffer from the above problems, i.e., use of hydrogen gas.

In the description of the embodiments (Figs. 1, 2 and 3), no use of hydrogen gas and no hydrogen vessel or line is described or suggested. Such use would be in opposition to the

stated invention objective. Applicants respectfully submit that if the use of hydrogen was involved, the Figs. would show piping or some other means by which the hydrogen is admitted to the system, because such use of hydrogen would require special piping and other handling equipment.

Example 4 on page 50 of the specification and Fig. 9 shows the extraction % remains nearly constant for at least 14 repeated uses without hydrogenation. Applicants described that rehydrogenation of the solvent in conventional systems was a problem addressed in the claimed invention by employing a specific solvent which is effective without a need for rehydrogenation (page 8, lines 1-10):

The organic solvent used in carrying out the method of the present invention preferably contains a two ring aromatic compound as a main component and has a boiling point of 200°C to 300°C at normal pressure. This method preferably further comprises a solvent recovering step of recovering the organic solvent removed by evaporation and recycling it to the slurry preparing step. The recovered organic solvent is substantially not rehydrogenated. As preferred means for recovering the organic solvent, vacuum distillation or spray drying can be used.

Applicants therefore respectfully submit that a problem associated with the use of hydrogen gas is described and the method according to Claim 1 and claims dependent thereon address this problem by not using hydrogen gas as described.

The MPEP § 2163 I. states:

To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention.

and in § 2163 I.B., the MPEP describes:

While there is no *in haec verba* requirement, newly added claim limitations must be supported in the specification through express, implicit or inherent disclosure.

Further in § 2163.02, the MPEP states:

The subject matter of the claim need not be described literally (i.e., using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement.

Applicants respectfully submit that the claim description added herein is sufficiently described and supported in the specification as originally filed so that one of ordinary skill in the art would recognize a description of the invention as presently described by the claims.

The rejection of Claims 1-13 under 35 U.S.C. 112, first paragraph is obviated by amendment. The description “that is not under hydrogen pressure” is herein deleted from the description of Claim 1. In view of this amendment, withdrawal of the rejection of Claims 1-13 under 35 U.S.C. 112, first paragraph is respectfully requested.

The rejection of Claims 1-13 under 35 U.S.C. 103(a) over Brink et al.(U.S. 4,045,187) in view of Miller (U.S. 4,617,105) is respectfully traversed.

Brink describes a process for the manufacture of coke by deoxygenation and removal of water comprising heating the carbonaceous material in intimate contact with a liquid solvent, a hydrogen carrier and hydrogen under pressure. (Claim 11 in pertinent part) Miller describes an improved process for thermal solvent refining or hydrolification of non-anthracitic coal at elevated temperatures under hydrogen pressure in a hydrogen donor solvent (Abstract).

The Office alleges that (Official Action dated March 26, 2009, page 4, lines 1-6):

. . . it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the hydrogen pressure of Brink et al. ('187) with a nitrogen pressure with an expectation of success, because Miller '105 . . . discloses that a hydrogen pressure and a nitrogen pressure in a coal extraction are functionally equivalent in terms of improving the extraction efficiency.

Applicants note that the description of Miller cited by the Office states:

The atmosphere during the extraction step can be air or an inert gas, e.g., nitrogen or helium. The extraction can be done either in a batch process or continuously.

The extracted coal may be transferred from the extractor to the liquefaction reactor under pressure, . . . If the extraction was done under an inert atmosphere, hydrogen can be added to the feed before transfer to the hydroliquefaction reactor or can be added directly to the liquefaction reactor.

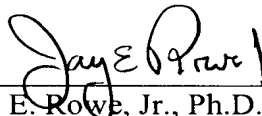
Applicants argue that Miller, in the above text, only shows **equivalency of nitrogen and helium** as inert gases. Substitution of nitrogen for hydrogen would render the Miller process inoperable because nitrogen would not replenish the hydrogen donor solvent. Accordingly, the Office has erred in its interpretation of the description of Miller.

Applicants respectfully submit that both references require hydrogen in extraction and/or liquefaction and therefore, the combined references cannot render the claimed invention obvious, and withdrawal of the rejection of Claims 1-13 under 35 U.S.C. 103(a) over Brink in view of Miller is respectfully requested.

Applicants respectfully submit that the claimed invention is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
Norman F. Oblon



Jay E. Rowe, Jr., Ph.D.  
Registration No. 58,948

Customer Number  
**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 08/07)